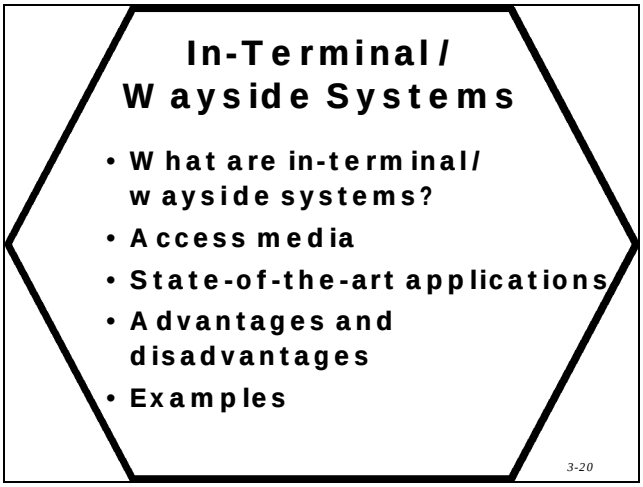
In-Terminal/Wayside Systems

Length

10 minutes lecture/discussion.

Slide: In-Terminal/ Wayside Systems



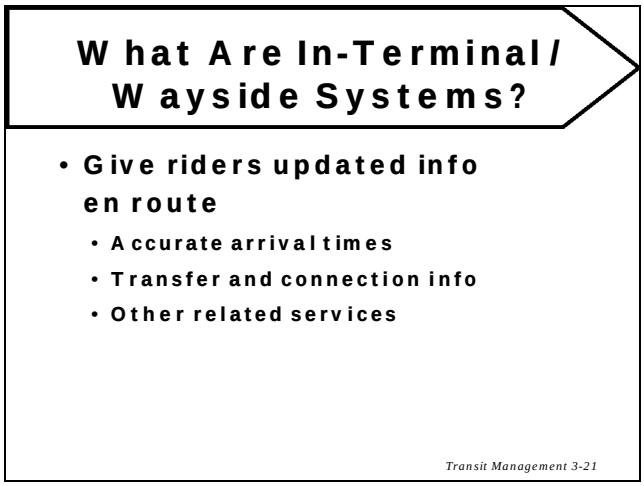
In-terminal/ wayside systems

Explain outline of Lecture/Discussion.

Continued on next page

In-Terminal/Wayside Systems, Continued

Slide: What Are In-Terminal/ Wayside Systems?



In-terminal systems

Explain the type of information available:
In-terminal/wayside systems give passengers updated information en route. As a result, they are more satisfied. In-terminal/wayside systems include:

- accurate arrival times
- transfer and connection information
- other related services

Say: In-terminal/wayside systems can be found:

- in transit terminals
  - ◊ e.g., a passenger waiting at a bus stop could use an in-terminal/wayside kiosk to see that the bus is five minutes away.
- in transportation centers
  - ◊ e.g., Penn Station, NY-NJ Port Authority, Grand Central Station
- at transit stops
- at park-n-ride areas
- in vehicle bays or loading areas

Continued on next page

In-Terminal/Wayside Systems, Continued

Slide: In-Terminal Systems Access Media

Class questions

Ask questions to see how familiar the class is with the technologies listed on the slide, e.g.:

- Has anyone ever seen in-terminal changeable information screens?
  - ◊ What kind of information did you see?
  - ◊ How did it work?

Ask several more questions for each of the more popular access media on the slide and then **explain** each one.

Electronic signs

Say: Electronic signs can include video and audio messages. They have the ability to display stop, schedule, and transfer information in many languages. They:

- help all types of transit passengers
  - ◊ The passengers do not have to do anything special to get information from electronic signs; they just have to watch or listen.
- comply with Americans with Disabilities Act requirements

Continued on next page

In-Terminal/Wayside Systems, Continued

Monitors

Say: Overhead monitors in transit terminals can provide route information as well as information about the next vehicle, e.g., arrival times, delays, etc.

Note to instructor

Note to instructor: Sometimes a reaction is to dismiss the idea of using electronic signs because of a fear that passengers waiting for a vehicle will be frustrated with a message that displays arrival or delay times.

Countering this opinion is the idea that the passenger will be more satisfied with knowing as opposed to not knowing.

- *This argument suggests that electronic message signs are a way to proactively improve customer service.*

Remember, any kind of access media needs to be accessible by all. If you provide a special service, you have to cover both audio and visual.

Continued on next page

In-Terminal/Wayside Systems, Continued

Kiosks

Say: We've discussed kiosks in pre-trip systems already. The difference here is that kiosks are being used in terminals or at transfer locations for the transit passenger already en route.

- ◊ There's more detail in your SG on kiosks for your reference.

Note to instructor

Note to instructor: The following information is in the student guide and can be skipped as lecture material:

Passengers can obtain the following information from kiosks at in-terminal or wayside centers:

- graphical images of transit routes and stops
- links to geographic information systems (GIS) which can provide maps of the area
- schedules and transfer information
- specific local area fare information and other information integrated from other transit agencies

The information from kiosks can be displayed in any language or visual form the user chooses, e.g., large type.

Continued on next page

In-Terminal/Wayside Systems, Continued

Television monitors

Say: TV monitors have the same advantages as electronic signs. In addition, the monitors could broadcast news, weather, and transit information.

Most of these monitors are subsidized through advertising in a public-private partnership.

Class question

Ask the students if any of them are familiar with or use these technologies.

Ask for one or two personal stories.

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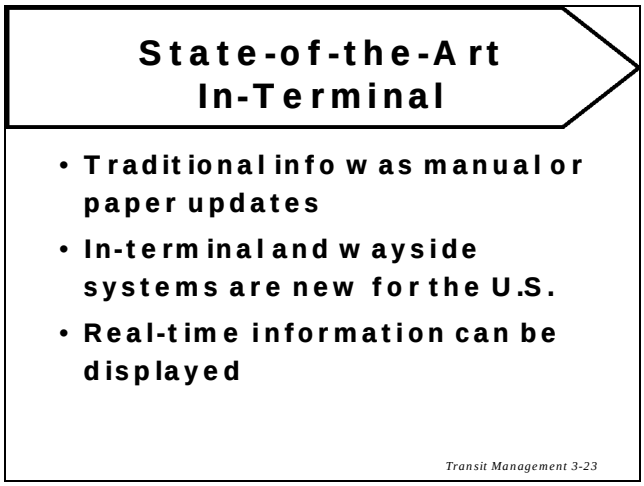
In-Terminal/Wayside Systems, Continued

Slide: State-of-the-Art In-Terminal



In the past

Explain that before in-terminal automated transit information systems existed, traditional systems included paper information and static signs.

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In-Terminal/Wayside Systems, Continued

State-of-the-art

Say: Electronic signs, kiosks, and TV monitors offer a great advantage over these traditional systems because:

- They are easily updated and do not have to be re-printed, re-manufactured or messily changed by hand.
- They can include audio, and text can appear in large type to comply with the ADA.
- Information can easily be displayed in many languages, and new languages can be added without re-printing or re-manufacturing.
- Real-time information is easy to display.

Advantages and dis-advantages discussion

Ask the following questions and write the answers on the board:

- How do you think in-terminal systems could benefit the passenger?
- How can they benefit the agency?
- What would it do to your operating costs if you had to switch from a manual information system to an automated one?
- What would it do to your staffing and training needs?
- Are there any risks you can think of?

***Note to instructor**: Be sensitive to students' comments and focus them on in-terminal advantages and disadvantages, as opposed to pre-trip or in-vehicle.*

Review the answers.

- **Say**: Let's compare your answers with our slides.

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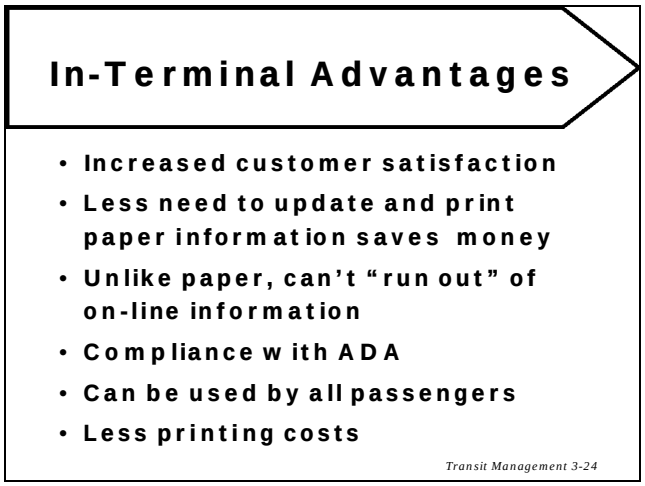
In-Terminal/Wayside Systems, Continued

Slide: In-Terminal Advantages



Advantages of in-terminal systems

Review any item on the slide that was not covered already.

The advantages of in-terminal and wayside systems include:

- Accurate, real-time, en route transit information increases customer satisfaction.
- There is less need to update and print paper information or static signs, which saves money.
- In-terminal systems can help you achieve compliance with the Americans with Disabilities Act.
- The systems can be used by all types of passengers, from novices to experts.

Explain the following:
The benefits to the passenger of in-terminal information systems will vary with headway:

- For instance, if buses run every 4 minutes, a passenger will be less concerned with when the next bus is than a passenger waiting for a bus that runs once an hour.

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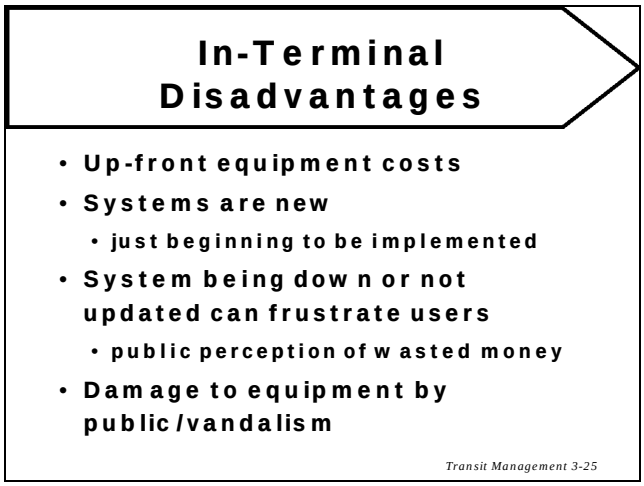
In-Terminal/Wayside Systems, Continued

Slide: In-Terminal Dis-advantages



In-terminal dis-advantages

Review any item on the slide that was not covered already.

The disadvantages of in-terminal and wayside systems include:

- up-front equipment costs
- public perception of transit:
  - ◊ If these systems go down or information is not current or accurate, users will be frustrated and possibly perceive public money as being wasted.
- the risk of vandalism or damage to the equipment by the public

- Also, some agencies may not want third parties to be aware of schedule delays – and therefore may be reluctant to get involved in information displays.

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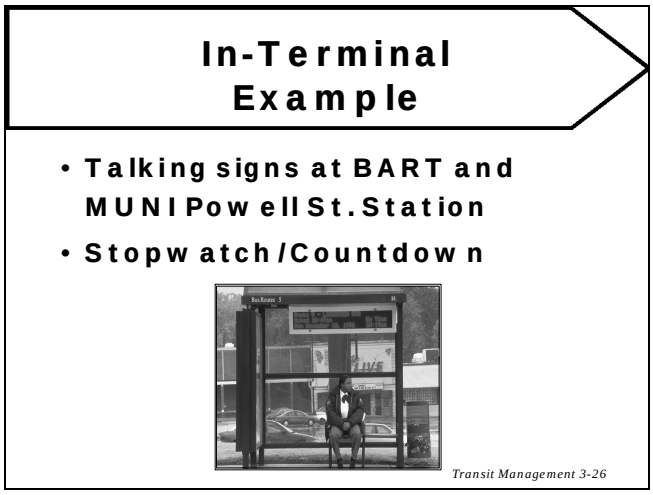
In-Terminal/Wayside Systems, Continued

Slide: In-Terminal Example



In-terminal example

Explain the example:

Bay Area Rapid Transit (BART) in San Francisco-Oakland, CA has joined with San Francisco Municipal Railway (MUNI) at the Powell Street station to experiment with "talking signs."

- The signs are for the visually impaired.
- This is the first use ever of remote audible information signs in a transit facility.

Explain how it works:

- The user carries a hand-held reader that has an earphone and speaker and uses an infrared beam.
- The user scans the area to "read" the signs.
- A proprietary system is used to translate the signals into audible messages and the direction they come from.
- Currently, each reader is programmed individually.
- This application has been used in intersections. For more information, see the TRB reports.
- See *Update '98,* p. 3-22

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In-Terminal/Wayside Systems, Continued

Stopwatch/ Countdown

Stopwatch/Countdown in London, England:

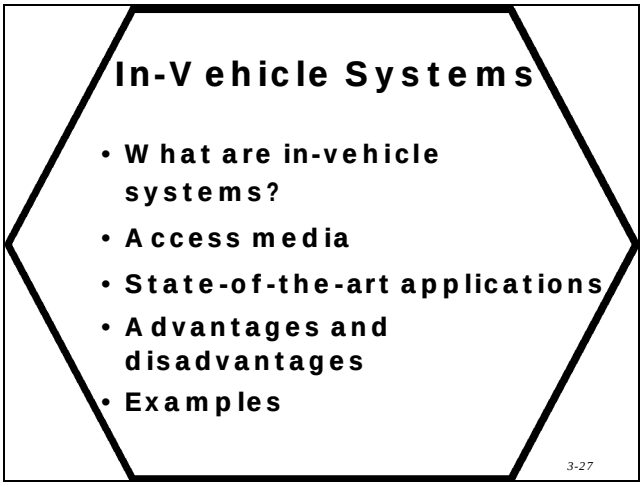
- The rapid transit stations have message signs that "countdown" the next approaching vehicle:
  - ◊ show destinations and waiting times

In-Vehicle Systems

Length

10 minutes lecture/discussion.

Slide: In-Vehicle Systems



In-vehicle systems

Explain outline of Lecture/Discussion.

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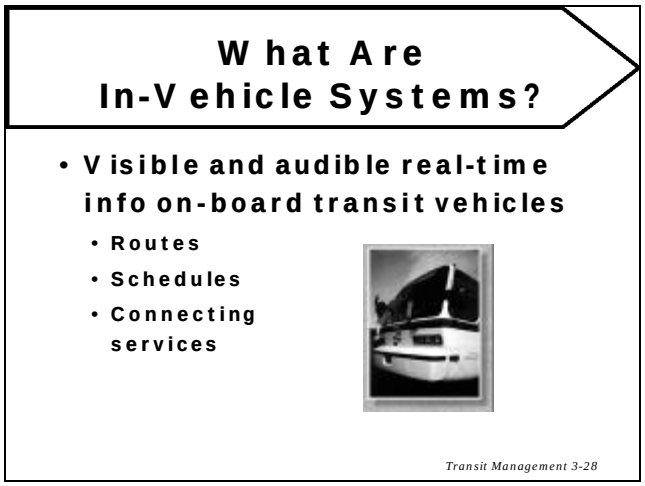
In-Vehicle Systems, Continued

Slide: What Are In-Vehicle Systems?



In-vehicle systems

Say: In-vehicle systems:

- Provide visible and audible route information, schedules, and connecting services in transit vehicles at key points along the routes

For example, in-vehicle systems can include:

- an automated audio system on a bus that announces stops and major destinations near the stops
- a video display on a train that shows stops, schedules, and other transit information and also plays news, weather, and ads
- an announcement that plays on an outside speaker when a bus stops so boarding passengers know which bus they are getting on

Continued on next page

In-Vehicle Systems, Continued

ADA information

TELL the students that the Americans with Disabilities Act (ADA) requires "that all fixed route transit vehicles provide both visual and audible information 'at transfer points with other fixed routes, other major intersections and destination points, and intervals along a route sufficient to permit individuals with visual impairments or other disabilities to be oriented to their location'" *Advanced Public Transportation Systems: The State of the Art Update '96*, p. 80.

The ADA also requires that this information be provided at stations.

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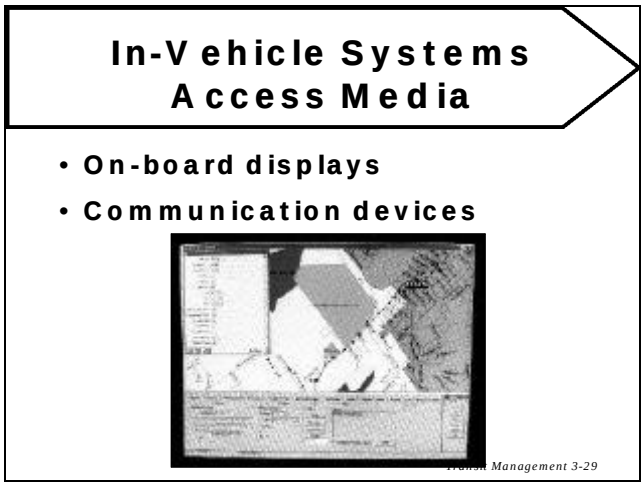
In-Vehicle Systems, Continued

Slide: In-Vehicle Systems Access Media



Class questions

Ask questions to see how familiar the class is with the technologies listed on the slide, e.g.:

- Has anyone ever used or seen an on-board information system?
  - ◊ What kind of information did you get?
  - ◊ How did it work?

Ask several more questions for each of the access media on the slide and then **explain** each one.

On-board displays

Explain: Variable message signs

- On-board displays can include electronic video monitors or signs that give passengers stop, schedule, and transfer information.
- Also, they are being used outside the vehicle to show route information to passengers waiting at a transit stop.

Continued on next page

In-Vehicle Systems, Continued

Communi-cation devices

Say: On-board communication devices include automated audio announcements or annunciators that give passengers audio information about stops, schedules, and transfers. Speakers located outside buses can give boarding passengers route number information.

Advantage of this media

Explain the advantage of this media.

Drivers and operators typically have experienced difficulty in announcing stops. An automated system avoids driver/operator distractions.

Class question

Ask the students if any of them are familiar with or use these technologies.

Ask for one or two personal stories.

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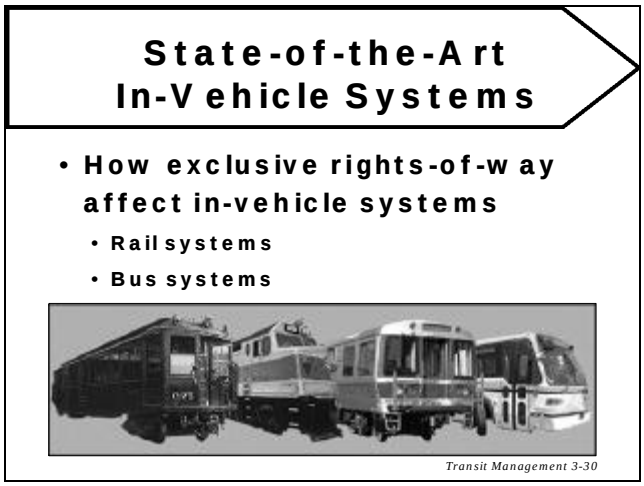
In-Vehicle Systems, Continued

Slide: State-of-the-Art In-Vehicle Systems



How rights-of-way affect these systems

Explain that in-vehicle systems are generally easier for rail systems to implement than bus systems.

- Schedules and stops are predictable for rail systems because of their exclusive rights-of-way, which do not allow other vehicles to share thoroughfares.

On the other hand, buses share the road with a multitude of vehicles, pedestrians, construction crews, etc., and they can run into any number of delays and route changes.

- Bus schedules and stops can be unpredictable.

"Bus Rapid Transit" is a current method for giving buses exclusive rights-of-way similar to an exclusive rail track.

- Some cities are adopting private bus lanes to reduce schedule variability.
- Some cities are converting abandoned railway beds into exclusive bus lanes.
  - ◊ This would allow the bus to be treated more like a rail system as far as scheduling and automated transit information is concerned.

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In-Vehicle Systems, Continued

State-of-the-art in-vehicle systems

State-of-the-art in-vehicle systems include:

- bus systems that have location technology to inform passengers of stops and route information
- audio communications devices on rail systems which have exclusive right of way
  - ◊ rail sensors or bus door openings may trigger station and stop announcements

Advantages and dis-advantages discussion

Ask the following questions and write the answers on the board:

- How do you think in-vehicle systems could benefit the passenger?
- How can they benefit the agency?
- What would it do to your operating costs if you had to switch from a manual information system to an automated one?
- What would it do to your staffing and training needs?
- Are there any risks you can think of?

***Note to instructor**: Be sensitive to students' comments and focus them on in-vehicle advantages and disadvantages, as opposed to pre-trip or in-terminal.*

Review the answers.

- **Say**: Let's compare your answers with our slides.

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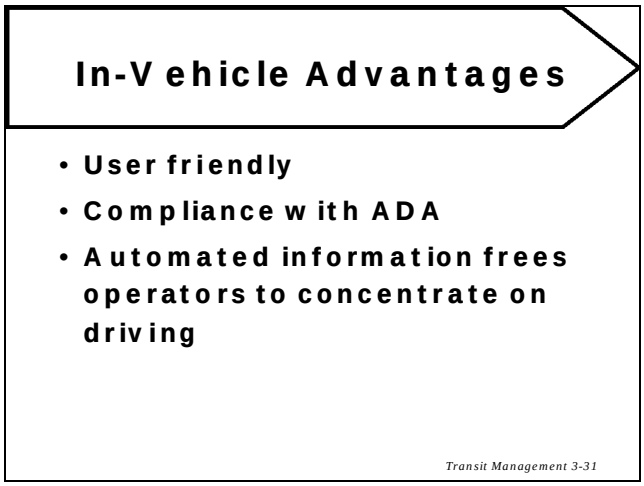
In-Vehicle Systems, Continued

Slide: In-Vehicle Advantages



Advantages of in-vehicle systems

Review any item on the slide that was not covered already.

The advantages of in-vehicle transit information systems are:

- In-vehicle systems are user-friendly and can be used by all types of passengers.
- They provide accurate, real-time information.
- They can help you achieve compliance with the Americans with Disabilities Act.
- Automated information frees drivers/operators and allows them to focus on operating the vehicles.
- In-vehicle systems can be incorporated into new and existing security systems to help with safety and record keeping.
  - ◊ "Although not strictly an in-vehicle information system for passengers, several transit agencies are experimenting with surveillance cameras on selected routes and equipment. It is intended to be a deterrent to crime and to curtail false injury claims made when vehicles are involved in accidents." *Update '96,* p. 80

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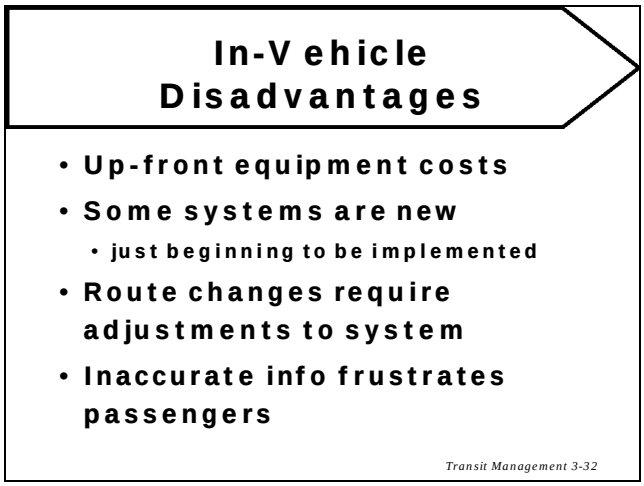
In-Vehicle Systems, Continued

Slide: In-Vehicle Dis-advantages



In-vehicle dis-advantages

Review any item on the slide that was not covered already.

The disadvantages of in-vehicle transit information systems are:

- Up-front equipment costs
- Some systems, like bus location technology, are quite new and are just beginning to be implemented.
- If a route has a major revision, it will require extensive revisions of the in-vehicle system.
- Inaccurate information can frustrate passengers.

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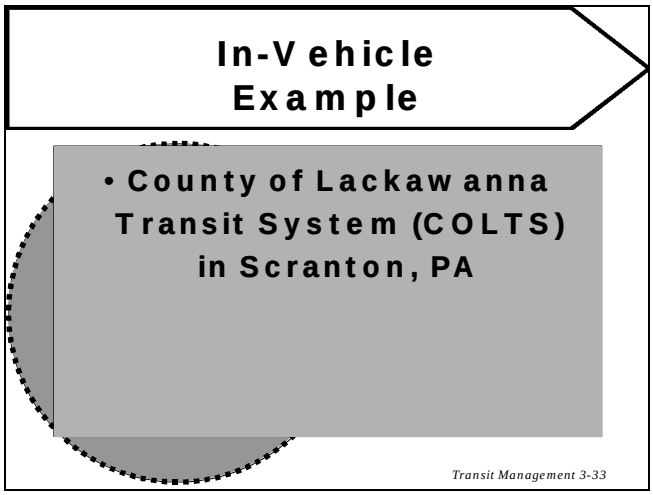
In-Vehicle Systems, Continued

Slide: In-Vehicle Example



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In-Vehicle Systems, Continued

In-vehicle system example

Say: The County of Lackawanna Transit Systems (COLTS) in Scranton, PA uses a Computer-Aided Dispatch/Automatic Vehicle Location (CAD/AVL)-based bus management system. This system also uses GPS satellite technology for triggering next stop announcements.

- **Say**: We'll be talking about the specific technology used in this example (CAD/AVL/GIS) in later modules. For now, focus on what they are doing with the data related to ATIS.

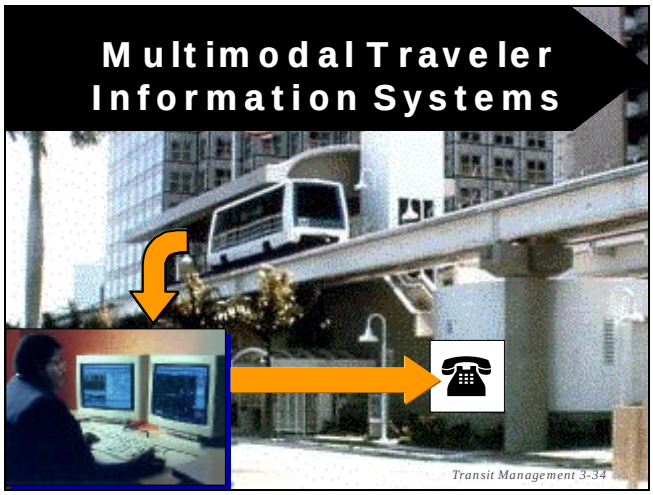
Other benefits include:
- oversight of bus progress along routes
- monitored transit schedules
- quick response to changing situations, breakdowns, or emergencies
- improved record-keeping

Say: Overall, on-time performance has increased. Comments include: "Great record-keeping tool; buses on time; easier ADA compliance" *Advanced Public Transportation Systems: The State of the Art Update '96*, p. 18.

Multimodal Traveler Information Systems

Length 10 minutes lecture/discussion.

Slide: MTIS



MTIS

Say: Multimodal Traveler Information Systems (MTIS) are also known as Traveler Information Systems, or Automated Traffic Information Systems. These systems contain information on highway and transit travel.

Multimodal Traveler Information Systems are the next step up from the kind of Automated Traveler Information systems we have just been discussing.

- This is where coordination and integration between modes becomes important.
  - ◊ e.g., You know where the buses are and how to communicate that information within your agency; now you can begin communicating outside your agency.
- This is also where highway and transit can come together.

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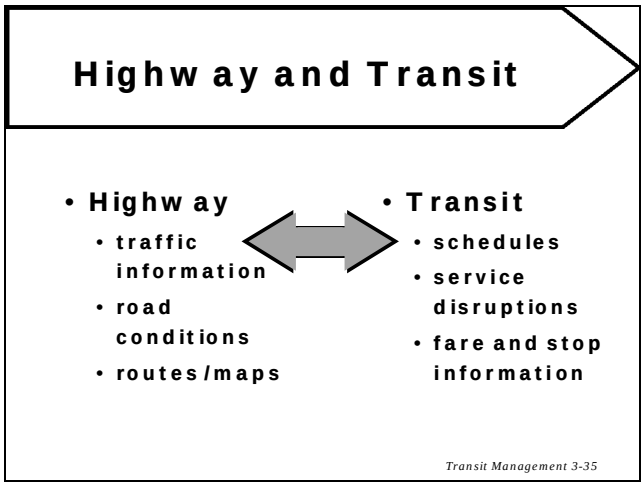
Multimodal Traveler Information Systems, Continued

Slide: Highway and Transit



Highway and transit

Say: Highway component of Multimodal Traveler Information Systems provides information on:

- real-time highway and road traffic information
  - ◊ incidents
  - ◊ construction
  - ◊ weather factors affecting road conditions
  - ◊ travel times
  - ◊ congestion

- static highway and road information
  - ◊ routes
  - ◊ directions (such as directions to popular attractions)
  - ◊ travel services (such as the location of rest stops)

Continued on next page

Multimodal Traveler Information Systems, Continued

Highway and transit, continued

Say: Transit component of Multimodal Traveler Information Systems provides information on:

- real-time transit information (describes situations as they unfold or as they are actually happening, and can change over time)
  - ◊ arrival and departure times
  - ◊ service disruptions
  - ◊ park-n-ride availability
  - ◊ real-time ridesharing information and opportunities
  - ◊ alternatives in service

- static transit information (describes situations that do not change or do not change often)
  - ◊ general transit services
  - ◊ schedules, fares, and stop locations
  - ◊ ridesharing registration
  - ◊ transit routes and maps
  - ◊ trip planning, e.g., itinerary, schedules

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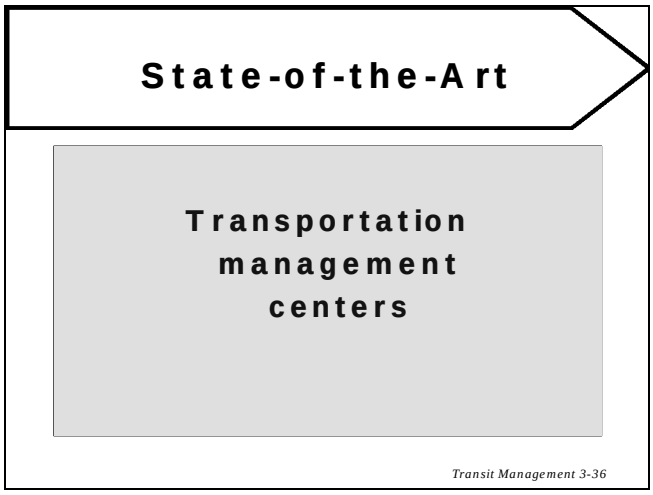
Multimodal Traveler Information Systems, Continued

Slide: State-of-the-Art



Transportation management center

Say: A transportation management center "employs advanced technologies to provide transportation information and/or to manage and control transportation networks." *Advanced Public Transportation Systems: The State of the Art Update '96*, p. 123.

Transportation management centers gather transit and highway information and then relay that information to the passengers through automated transit information systems.

U.S. experience with in-terminal wayside systems has not been extensive or overwhelmingly successful yet.

Class question

Ask the students if any of them are familiar with or use Multimodal Traveler Information Systems.

Ask for one or two personal stories.

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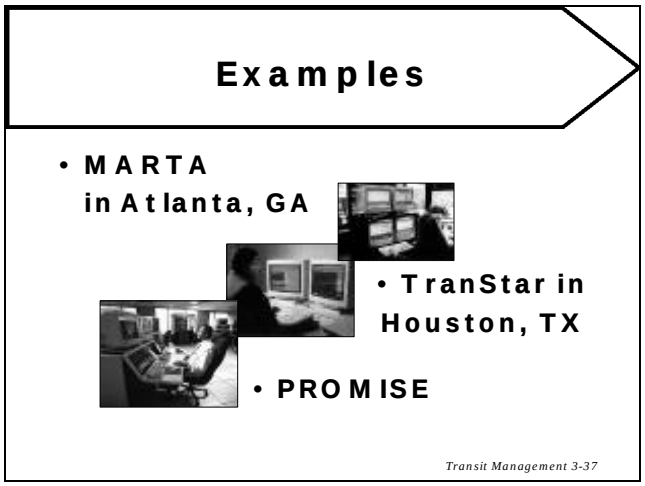
Multimodal Traveler Information Systems, Continued

Slide: Examples



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Multimodal Traveler Information Systems, Continued

MARTA

Say: The Metropolitan Atlanta Rapid Transit Authority (MARTA) and the Georgia DOT began a number of ITS projects to connect highway, transit, and passenger information systems, called the Traveler Information Showcase. During the Summer Olympics in 1996, passengers could obtain the following information:

- traffic conditions and incidents on major highways
- updates on construction and road closings
- bus and rail schedules
- directions to transit stops and fare information
- facts on restaurants, hotels, and popular attractions

The technologies available included:

- kiosks with touch screens
- hand-held devices (personal communications devices)
- interactive television in hotel rooms
- cable TV with a dedicated transportation information channel
- wayside bus signs
- in-vehicle navigation devices
- on-line computer services (Internet and bulletin boards)

Continued on next page

Multimodal Traveler Information Systems, Continued

TranStar

METRO is an active partner in the operation of Houston TranStar, the region's state-of-the-art traffic and emergency management center. Using Houston TranStar's collection of ITS technologies, METRO is able to provide better service to the Authority's patrons.

Programs operated from TranStar include:

- METRO bus dispatch
- Traffic signalization systems
- Freeway management systems
- Incident management programs

METRO's partners in TranStar are:

- The Texas Department of Transportation
- The City of Houston
- Harris County

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Multimodal Traveler Information Systems, Continued

PROMISE

The PROMISE (Personal Mobile Traveler and Traffic Information Service) mission is to provide users with easy access to useful travel and traffic information services during their whole journey.

Services include:
- traffic information
- transit schedules
- choice of language

Media used includes:
- handportable internet phone
- hand held communicator
- in-vehicle PC terminal
- hand held PC

PROMISE is a project in six European countries:
- Finland: E18, highway from Turku through Helsinki to the Russian border
- Sweden: Gothenburg city area
- Scotland: corridor between Edinburgh and Glasgow
- The Netherlands: Ranstad area
- France: Paris, Ile de France
- Germany: Bavaria

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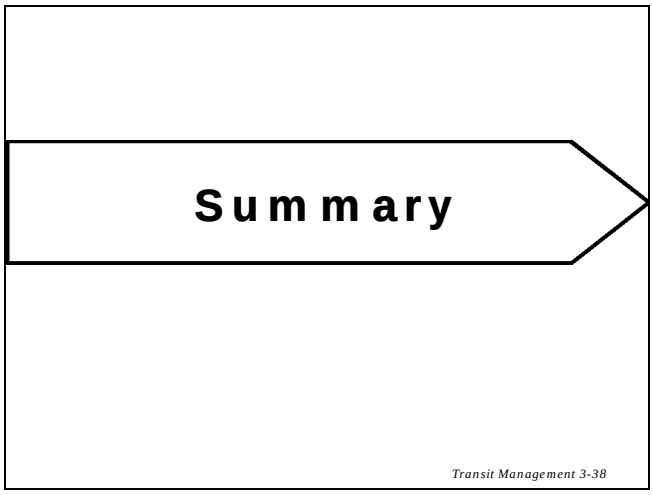
Multimodal Traveler Information Systems, Continued

Slide: Summary



Summary Explain resources that will provide students with additional information. Refer to appendix for listings of related courses.

Transit Management Training Course	Title	ITS Professional Capacity Building		NTI course
		Technical Seminars	Short Courses	
Module 3: **Automated Transit Information**	Planning the Integration of Transit and Traffic ITS Applications			x
	Reinventing Transit: Using Information Technologies to Reinvent Transit Services			x
	Improving Transit System Performance Using Information-Based Strategies			x

TABLE 3-1: APTS AUTOMATED TRANSIT INFORMATION TECHNOLOGY REFERENCE

Technology	*Description*	*Benefits, Costs, and Risks*
Pre-Trip		
General Pre-Trip		• Accurate and/or real-time information • Lead to increased customer satisfaction and decreased highway volume • Easy to use for all types of passengers • Opportunity for passengers to plan entire itinerary
Touch-tone telephone	Automated call answering systems or operator assisted systems with automated data retrieval for pre-trip information	• Lower average call time and less labor intensive • Reduced operating costs • Quicker response time, leading to more volume capacity
Personal computers	Transit users access pre-trip planning information from their home or business computers	• Convenient for user to access at home or office
Internet	Internet applications and information created by transit agencies	• Inexpensive with short development times • Can reach a broad audience
Pagers/personal communications devices	Lightweight, portable, wireless devices that include hand-held devices, cell phones and pagers, which can access pre-trip information	• Convenient for user to access any time
Kiosks	Consoles with touch screens placed in high foot-traffic areas that access audio, video, and/or map information for planning transit travel	• Information can be displayed in the user's choice of language • Located in high pedestrian traffic areas such as malls and shopping centers • Promotion opportunities such as free transit tickets
Cable TV	Interactive television or dedicated cable channel	• Convenient for user to access at home or office • Application is not used extensively
In-Terminal/Wayside		
General In-Terminal/ Wayside		• Accurate, real-time information for en route passengers about schedules, stops, and connections • Save money by reducing need to update and print paper information • Can be used by all types of passengers from novice to expert • Systems are new and just beginning to be implemented

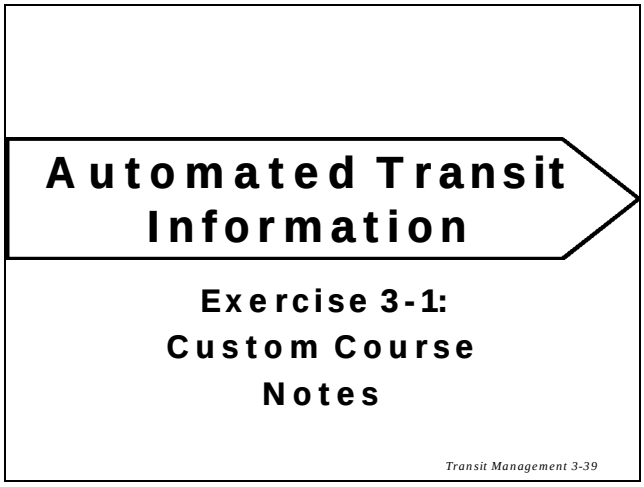
TABLE 3-1: APTS AUTOMATED TRANSIT INFORMATION TECHNOLOGY REFERENCE

Technology	*Description*	*Benefits, Costs, and Risks*
In-Terminal/Wayside		
Electronic signs	Electronic displays which provide real-time video and audio messages to the transit user at a transfer spot	• ADA compliance • Easier and less expensive to update than static signs
Kiosks	Consoles with touch screens placed in the terminal or transfer spot that access real-time audio, video, and/or map information showing connection information or next arrival and departure times	• Information can be displayed in the user's choice of language • Can display information in forms that comply with the ADA
Television monitors	TV screens placed in the terminal that display video and audio messages to the traveler	• ADA compliance • Easier and less expensive to update than static signs
In-Vehicle		
General In-Vehicle		• User-friendly technologies that benefit all types of passengers • Accurate, real-time information • ADA compliance • Can be incorporated into security systems • Some systems are new and just beginning to be implemented
On-board displays	Electronic video or sign displays that give passengers stop and schedule information	• Easier and less expensive to update than static signs
On-board communication devices	Automated audio announcements to notify passengers of stops and transfers	• Frees operator to concentrate on driving
Multimodal Traveler Information Systems		
General	All technologies in a combination of Automated Transit Information Systems	• Passengers can get real-time or static information on all phases of transit travel and make transit a viable choice over single occupancy vehicles

Exercise 3-1: Custom Course Notes

Length 30 min.

Slide: Exercise 3-1



Leader instructions

Read the "In this exercise" and the directions to the class.

Say:

- Turn your student guides to the MARTA case study on page _____. Read the case study, then answer the questions on page _____.

- **Allow** ten minutes for the students to read the case study and answer the questions.

Note to instructor: *This exercise continues after the questions.*

Continued on next page

Exercise 3-1: Custom Course Notes, Continued

In this exercise

You will:

- be able to describe the possible benefits of using Automated Transit Information in your transit systems

Directions

Read the example provided and answer the questions that follow.

Case Study: MARTA

This case study includes two aspects of MARTA in Atlanta:

- Passenger Routing and Information System (PARIS)
- Traveler Information Showcase

PARIS

MARTA's PARIS helps 16 operators provide customers with bus and rail trip itineraries and schedule information. About 20 percent of traveler inquiries are for full itineraries, while the remaining 80 percent are requests for specific bus and train schedule information. For optimal trip itineraries, an operator requests trip origin, destination, and time specifications from a caller, and inputs the information into the Megadyne software to obtain the itinerary with the shortest duration. For schedule information, an operator is also required to interface with the automated system. PARIS is able to access AVL information provided by the one third of MARTA's buses equipped with AVL to answer schedule queries. An automated voice response system reports the desired information to the customer. At rail stations, MARTA has installed free ring-down telephones for passengers to connect directly with PARIS operators.

Source: APTS State of the Art Update '98, p. 3-12

Continued on next page

Exercise 3-1: Custom Course Notes, Continued

Traveler Information Showcase

The Traveler Information Showcase project was developed to increase public awareness of the ITS program and demonstrate the benefits in daily commuting. The Showcase was initiated by the Federal Highway Administration in partnership with the Federal Transit Administration, the Georgia Department of Transportation, and the Metropolitan Atlanta Rapid Transit Authority, among others. The Federal Highway Administration contracted for the implementation of the Showcase project.

The Showcase was one of five major ITS efforts in the Atlanta area spurred by the 1996 Summer Olympic Games. ITS MARTA '96, the Advanced Traveler Information Kiosks, the Advanced Transportation Management System, and the Atlanta Driver Advisory System were the other four. The Showcase demonstration ran from June through September 1996, with most of the systems continued through February 1997.

The Showcase project provided real-time information to travelers through the following five devices/technologies: personal communications devices; in-vehicle navigation systems; cable television; interactive television; and the Internet. The real-time transportation information that was communicated to the Showcase devices was made available through the Advanced Transportation Management System constructed by the Georgia DOT. Information communicated to the Showcase devices included: traffic incidents; congestion on major highways; updates on construction activities and road closures; bus and rail station locations; schedules and fares; airline schedules and flight information; and information on special events, tourist sites, and yellow pages information.

Continued on next page

Exercise 3-1: Custom Course Notes, Continued

Traveler Information Showcase, *continued*

All except the personal communications devices continue in operation at this time, although the interactive television system has been moved from a hotel to an apartment complex.

Source: APTS State of the Art Update '98, p. 3-31 to 3-32

Multimodal aspects of the Traveler Information Showcase

Internet:

- The Showcase's Internet site provided real-time traffic maps, route planning, and links to MARTA's transit system, as well as wide area travel, Olympic event, and other information. The Showcase Internet home page was visited on an average of 2,000 to 3,000 times a week during the first four months of the demonstration. During the two weeks of the Olympics, the home page averaged 10,000 visits a week.

Personal Communications Devices:

- About 250 personal communications devices were available during the Showcase. These devices provided much the same information as the Internet home page. Visitors wishing to try the two different wireless hand-held devices could obtain them at local hotels and at the Atlanta-Hartsfield International airport. Some units were also provided to local businesses and government agencies. Participants could check the traffic maps on the PCD screen for the shortest or quickest route to their destinations or get information on transit options using bus and rail routes and schedules.

Continued on next page

Exercise 3-1: Custom Course Notes, Continued

Multimodal aspects of the Traveler Information Showcase

In-Vehicle Navigation Systems:

- Volunteers, visitors, and local fleet drivers were provided with turn-by-turn directions to their destinations, real-time traffic information, maps, and electronic yellow page information through their in-vehicle navigation display units. One hundred on-board computing units were installed in vehicles provided by Oldsmobile and BMW, Hertz rental cars, and local business and government fleet vehicles.

Cable Television:

- During the Showcase, cable systems in the City of Atlanta, DeKalb, Gwinnett, and Cobb Counties carried the real-time Georgia Traveler Information Television programming. Viewers received information from maps showing incident locations and traffic speeds, live surveillance video feeds from strategically placed roadside cameras, and traffic advisory bulletin boards.

Interactive Television:

- Televisions in 285 rooms in the Crowne Plaza Hotel, Ravina, provided a host of services including real-time traffic and transit information to guests via the Interactive Channel. Guests could receive printed maps with directions to their destination. Using the remote control unit, the viewer could select from a menu of information options. The head end computer at the hotel processed the request and returned the information back to the television set.

Continued on next page

Exercise 3-1: Custom Course Notes, Continued

Multimodal aspects of the Traveler Information Showcase, *continued*

Participant Assessment:

- Users were asked about their use of the various Showcase information services. Between half and three quarters of respondents found the information provided to be helpful. At least 40 percent of respondents changed their travel plans or decisions at least once on the basis of information received. Most users felt that the devices provided an excellent way to present information. An in-vehicle device was the most likely to be purchased if the cost was reasonable. The U.S. DOT considered the Showcase a resounding success.

Kiosks:

- There are approximately 39 interactive kiosks placed in or outside 22 MARTA rail stations in addition to more than 100 others in various locations. These kiosks provide a whole range of traveler information in addition to transit and traffic data. One potential upgrade that is being considered is changing from a typical Windows-based PC platform to a dumb terminal architecture that will provide the user with a World Wide Web browser to access Web sites containing desired information. One effect of this will be to eliminate the need to have a large database resident on each kiosk's processor and also put the onus on updating information on the respective Web site's sponsor.

Source: APTS State of the Art Update '98, p. 3-32 to 3-34

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Exercise 3-1: Custom Course Notes, Continued

Question 1 Are there any pieces of MARTA's multimodal information system that could work in your area? Which and why?

Question 2 List three benefits automated transit information could provide to your transit system or to your region.

Continued on next page

Exercise 3-1: Custom Course Notes, Continued

Turn to Module 10

When students are finished with Exercise 3-1, direct them to Module 10.

Say: Open your book to Module 10, page _____. Using the student guide's information about ATIS and your knowledge of your own region and agency, customize this quick reference to help you plan when you return to your office. Respond to each item as follows:

- In **item 1**, circle the technologies that are currently used in your region. Highlight potential technology for future applications.

- In **item 2**, read each of the questions and answer yes or no. "Yes" answers suggest your interest in Automated Transit Information Systems.

- Read **item 3** to identify which types of technology are best suited to solve particular problems.

- In **item 4**, tell the students to write their own action items and/or ideas that this module suggests to them. For example:
  - ◊ Are there any questions you want answered?
  - ◊ Were there any web sites that you wanted to look at when you return to the office?
  - ◊ Were there any courses or resources you wanted to find out more about?
  - ◊ Did we mention any transit example that you want more information about — who can you contact and where?

Continued on next page

Exercise 3-1: Custom Course Notes, Continued

For more information For additional information, use the following table to look up additional examples of what is going on in the field.

Automated Transit Information Examples			
Technology	**Story**	***Update '98***	**Additional info**
Pre-Trip	Riderlink, BusView, EZRider, in Seattle, WA	p. 3-3	Interagency efforts at providing transit information in the Seattle area, including Internet, telephone systems, and kiosks
	TransitProbe and TravelTip by California DOT and FHWA in Orange County, CA	p. 3-4	Intermodal integration
	TravInfo and TranStar in San Francisco Bay Area, California	p. 3-6 & 3-39	Interagency sharing of data
	IVR in Newark, NJ	p. 3-10	Improvements to a phone system
In-Terminal/ Wayside	PA systems for subway terminals, wayside systems for bus stops, New York City, NY	p. 3-14	Also Talking kiosk (see also *Update '96,* p. 77)
	Phoenix, AZ	p. 3-20	Kiosks
	BusLink and EZRider in Seattle, WA	p. 3-21	
In-vehicle	Newark, NJ	p. 3-26	See also *Update '96,* p. 82.
	In-vehicle annunciators by Torrence Transit, CA	p.3-28	85 vehicle fleet
Multimodal integration	Municipal kiosks and Smart Commuter in Houston, TX	p. 3-37	